

# Preliminary Synthesis to Inform the Interim Science Action Agenda

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Prepared for the Interim Science Action Agenda Workshop

**Delta Science Program**

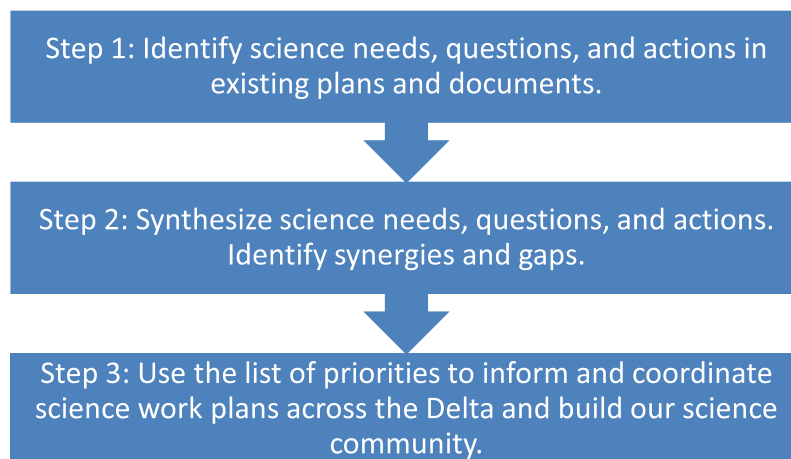
**5/6/2014**

Background information for the Interim Science Action Agenda Workshop (May 6, 2014). This summary synthesis provides an overview of the commonalities and gaps identified through looking across multiple plans, reports and documents that identify science needs, questions and actions.

## What is the Interim Science Action Agenda?

- ▶ A shared list of near-term common priority science needs, questions, and actions from existing documents to be addressed within a 2-year time frame
- ▶ Identification of Delta-wide science needs and gaps to inform policy and management
- ▶ A shared agenda for science collaboration among agencies and programs
- ▶ The basis for the full Science Action Agenda that will cover a four-year time frame as called for in the Delta Science Plan (see back page)

## How will the Interim Science Action Agenda be developed and used?



## Where are we in the process of developing the Interim Science Action Agenda?

The Delta Science Program has started steps one and two above. To date, **26 plans and documents** have been searched for science needs, questions and actions (Table 1). These represent priority science and information needs of **25 agencies/programs** (Table 2). The information was organized in a matrix and a preliminary synthesis is underway to identify the commonalities among the science needs and actions of various agencies and entities. A summary of the methods used to develop the matrix can be found in Appendix A.

### Science Needs, Actionable Science Questions and Science Actions Defined

**Science Need** - Broad, overarching science and information needs extracted from various reference documents that, when addressed, will assist in the decision making process of policy and managers

**Actionable Science Question** - Translation of science and information needs into questions that can be addressed with specific science actions

**Science Action** - Defined as an activity that addresses the actionable science question and/or the overarching science need

## What are the Potential Uses of the Interim Science Action Agenda?

1. Input to annual science work plans
2. Coordinated/ joint proposal solicitation packages and requests for proposals
3. An initial step toward a web-based tracking system to inventory and track science efforts in the Bay-Delta (Delta Science Plan, Action 2.3)
4. A step towards prioritization of science efforts and a full Science Action Agenda (Delta Science Plan, Action 2.2)
5. Linkages to informing updates to *The State of Bay-Delta Science, 2008* (Delta Science Plan, Action 2.6)
6. Others uses?

## Summary of the Preliminary Synthesis

The identification and reporting of science needs, questions and actions is highly variable across plans and documents. The focus of this preliminary synthesis was on the science needs and science actions by policy area and agency/entity because the information was most accessible or discernible.

## Science Action Categories

About one half of the science actions considered were research related. Monitoring science actions comprised a quarter of the science actions. About 12% of the actions with discernible science action categories were associated with more than one science action category (e.g., data management and modeling).

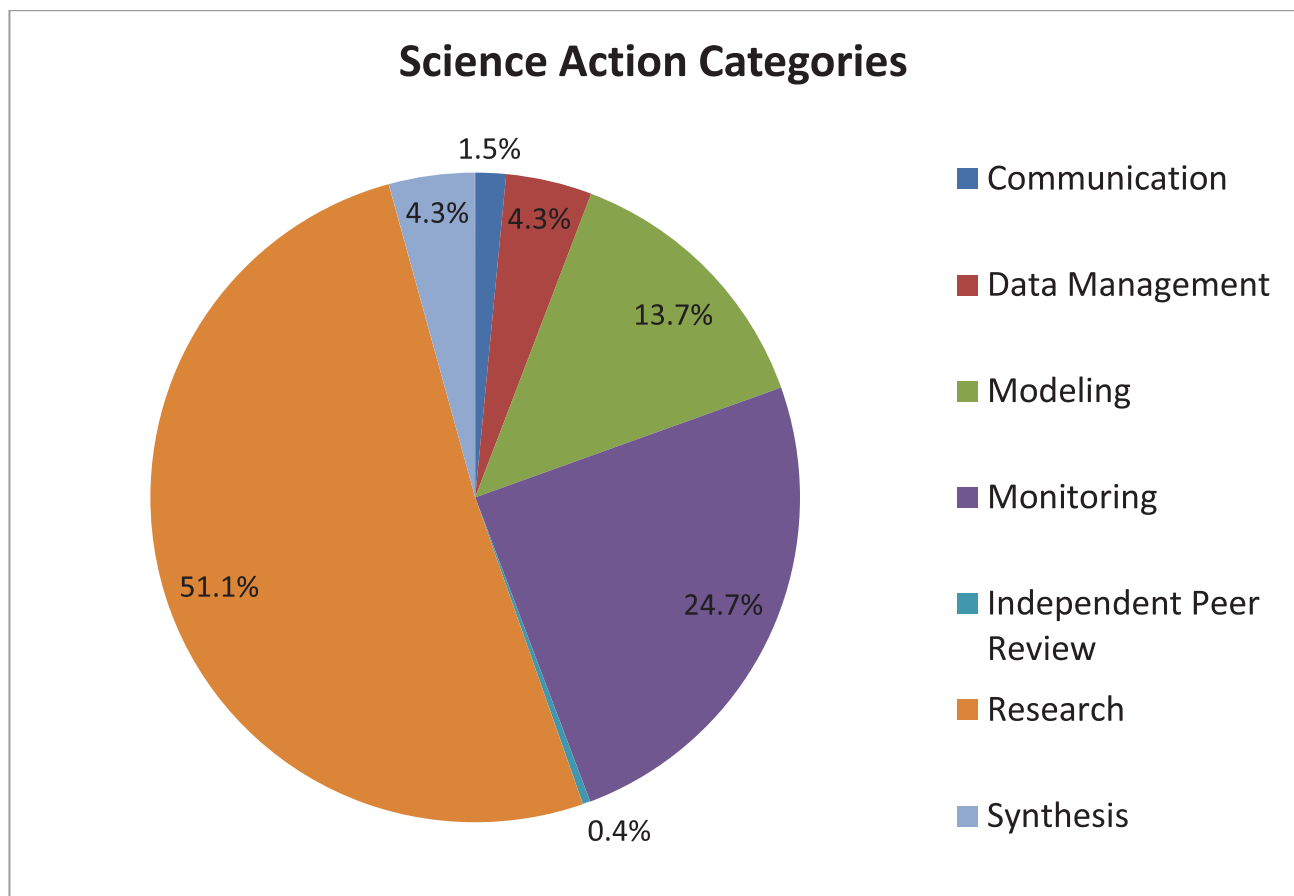


Figure 1. Percentages of science action categories

### Science Needs and Science Actions by Policy Area

The majority of science needs and actions considered fell into the ecosystem restoration (which captures broad ecosystem related science and is not limited to restoration science) policy area. Almost all of the science needs and actions considered were related to one or more of three policy areas: 1) ecosystem restoration, 2) water resources, and 3) water quality.

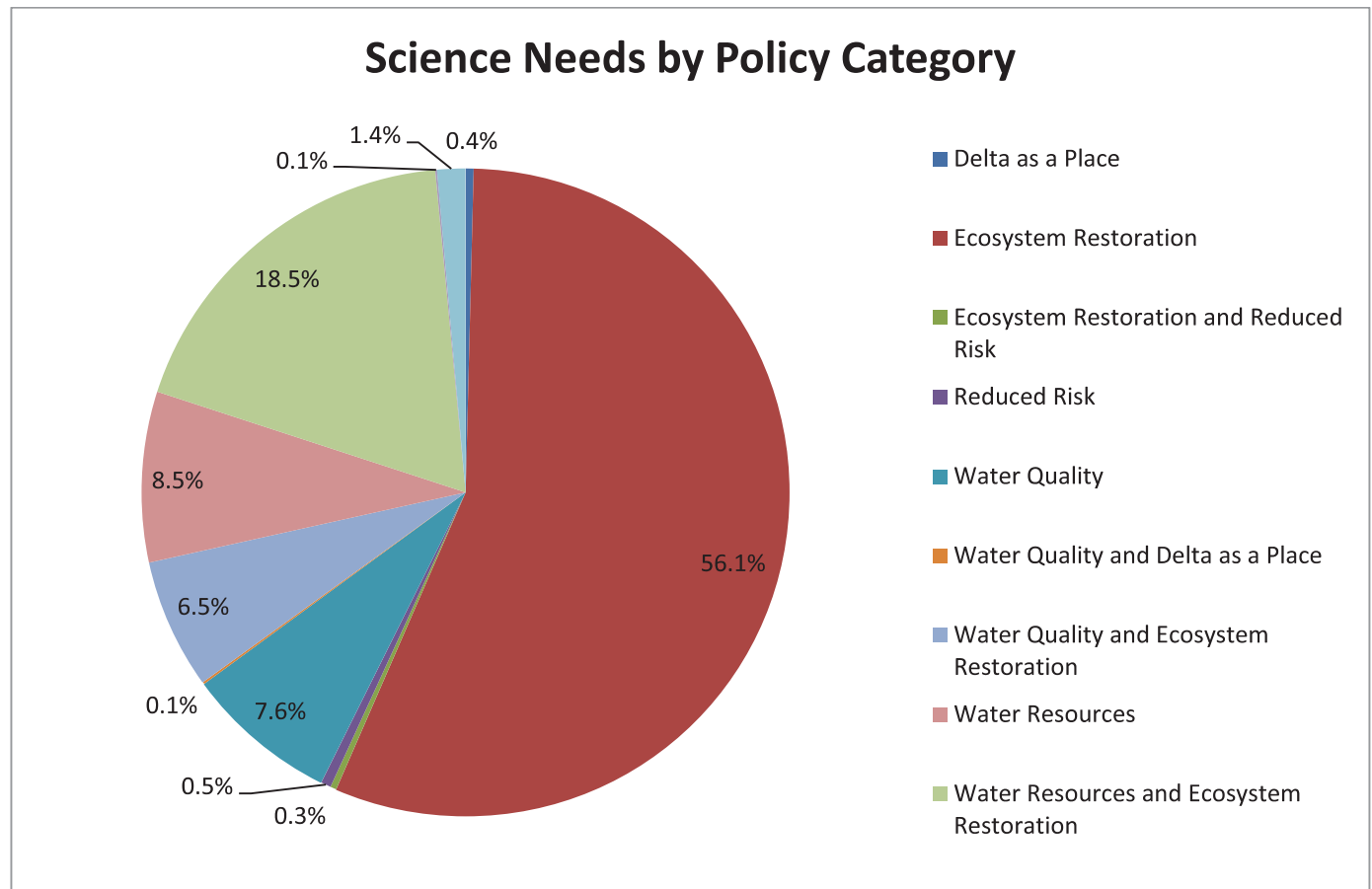


Figure 2. Percentages of science needs by policy categories

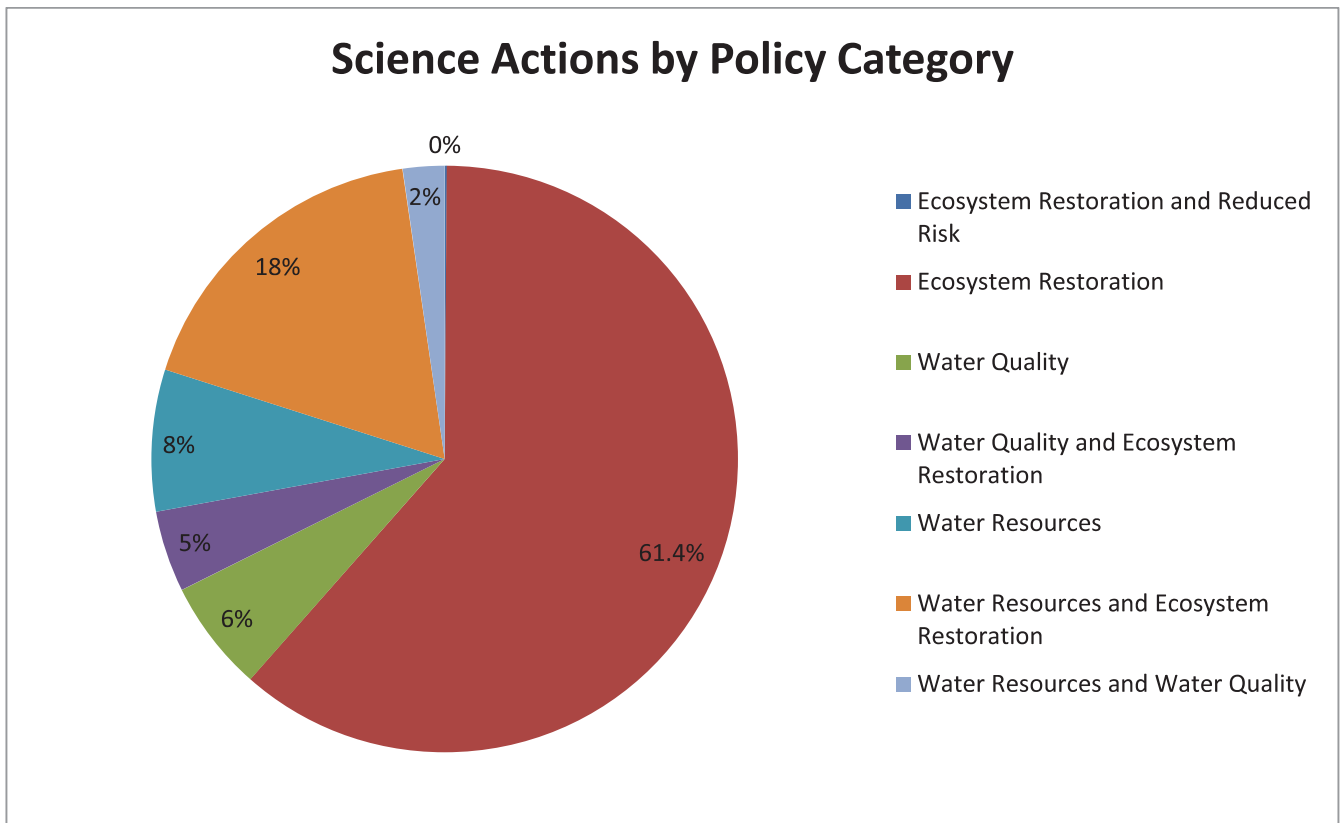


Figure 3. Percentages of science actions by policy categories

#### Ecosystem Restoration

Entities that have identified the majority of science needs and science actions considered:

1. Majority of Science Needs
  - a. Bay Delta Conservation Plan
  - b. Federal Task Force
  - c. Interagency Ecological Program
  - d. State Water Resources Control Board
  - e. Collaborative Adaptive Management Team
2. Majority of Science Actions
  - a. Bay Delta Conservation Plan
  - b. Interagency Ecological Program
  - c. Federal Task Force
  - d. Collaborative Adaptive Management Team
  - e. CALFED Ecosystem Restoration Program

The following were the most frequently occurring topics for science needs and science actions (based on a limited keyword search):

1. Science Needs
  - a. Restoration

- b. Habitat
  - c. Modeling
  - d. Predation/predator
  - e. Delta smelt
2. Science Actions
- a. Restoration
  - b. Modeling
  - c. Habitat
  - d. Salmon/salmonids
  - e. Delta smelt

## Water Resources

Entities that have identified the majority of science needs and science actions considered:

1. Majority of Science Needs
- a. Bay Delta Conservation Plan
  - b. Department of Water Resources
  - c. State Water Resources Control Board
  - d. Federal Task Force
  - e. Interagency Ecological Program
2. Majority of Science Actions
- a. Bay Delta Conservation Plan
  - b. Department of Water Resources
  - c. Federal Task Force
  - d. Interagency Ecological Program
  - e. Municipal Water Quality Program Investigation

The following were the most frequently occurring topics for science needs and science actions (based on a limited keyword search):

1. Science Needs
- a. Modeling
  - b. Flow
  - c. Entrain/salvage
  - d. Salmon/salmonid survival
  - e. Barrier
2. Science Actions
- a. Modeling
  - b. Barrier
  - c. Flow
  - d. Entrain/salvage
  - e. Salmon/salmonid survival
  - f. Predation/predator

## Water Quality

Entities that have identified the majority of science needs and science actions considered:

1. Majority of Science Needs
  - a. Interagency Ecological Program
  - b. Delta Regional Monitoring Program
  - c. San Francisco Bay and Central Valley Regional Water Boards
  - d. Independent Scientific Advisory Panel (IEP Contaminants Work Team's Biomarkers Workshop)
  - e. Federal Task Force
2. Majority of Science Actions
  - a. Interagency Ecological Program
  - b. San Francisco Bay and Central Valley Regional Water Boards
  - c. Federal Task Force
  - d. Municipal Water Quality Investigations
  - e. Bay Delta Conservation Plan

## Challenges and Opportunities

### Challenges Encountered

1. High variability in the reporting of science needs and actions
2. Incomplete and absent reporting on:
  - a. Status of actions (proposed, ongoing, completed)
  - b. Priority of actions (high, medium, low)
  - c. Entity(ies) implementing actions
  - d. Estimated cost of the actions
3. Accessibility to and knowledge of the most pertinent agency/entity documents

### Opportunities to Explore

1. Narrowing in on specific priority science topics (i.e., refining keyword searches for identify commonalities among entities)
2. Input on what's missing and how the synthesis can be improved
3. Community input on useful structures of the Interim Science Action Agenda

**Table 1. References included in the initial summary**

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**References**

2014 Delta Strategic Work Plan  
 BDCP Appendix 3.D  
 BDCP Appendix 5.F  
 California Water Action Plan  
 California Water Plan  
 Central Valley Project and State Water Project Drought Operations Plan and Operations Forecast: April 1, 2014 through November 15, 2014, Balancing Multiple Needs in a Third Dry Year  
 Comprehensive (phase 2) Review and update to the bay-delta plan: Final bay-delta plan workshops summary report  
 CVPIA 2014 Annual work plan: AFRP  
 Delta ISB final report: "Habitat restoration in the Sacramento-San Joaquin Delta and Suisun Marsh: a review of science programs"  
 Delta Plan  
 Delta Restoration Framework  
 Delta Science Program 2010 Proposal Solicitation Package  
  
 Delta Science Program Independent Science Review: Fall Low Salinity Habitat (FLaSH) Study Synthesis – Year One of the Delta Fall Outflow Adaptive Management Plan Review Panel Summary Report  
 Draft Delta Regional Monitoring Program: A Proposal for a Regional Monitoring and Assessment Framework and its Implementation  
 Ecosystem Restoration Program Proposal Solicitation Packages  
  
 Ecosystem Restoration Program, Conservation Strategy for Restoration of the Sacramento-San Joaquin Delta  
 Evaluating Stressors in the San Francisco Estuary using Biomarkers Report of an Independent Scientific Advisory Panel  
 Municipal Water Quality Investigations Program 2013-2014 Work Plan  
 Progress Report to the Collaborative Science Policy Group  
 Report of the 2013 Independent Review Panel (IRP) on the Long-term Operations Biological Opinions (LOBO) Annual Review  
  
 Review of the IEP Delta Juvenile Fishes Monitoring Program and Delta Juvenile Salmonid Survival Studies  
  
 State & Federal Contractors Water Agency (SFWCA) Request for Proposals  
  
 State & Federal Contractors Water Agency (SFWCA) Request for Qualifications  
 Suisun Bay Ammonium Synthesis Report  
 Table 2A. Summary and Costs of the 2014 Interagency Ecological Program Monitoring, Special Studies and Fish Facility Activities (Elements)  
 Task Force Complete Table From 2010  
 The predation workshop report - EFFECTS OF FISH PREDATION ON SALMONIDS IN THE SACRAMENTO RIVER – SAN JOAQUIN DELTA AND ASSOCIATED ECOSYSTEMS

**Grand Total**

**26**

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**Table 2. The number of science needs, questions and actions by agency/entities captured in the initial synthesis**

Agency/entity	Science Need	Actionable Science Question	Science Action
BDCP	300	161	276
CALFED ERP	18	16	13
CDFW	17		
CNRA, CDFA, CAL/EPA	16		9
Collaborative Adaptive Management Team (CAMT)	38	38	38
Delta Conservancy	3	3	3
Delta Independent Science Board	17	17	11
Delta Regional Monitoring Program	25	20	2
Delta Science Program	17	17	2
DSC	38	1	
DWR	55		55
Federal Task Force	142	66	139
IEP	165	10	165
IEP-SAG	3	3	3
Independent Expert Panel (DSP/CDFW/NOAA Fish Predation Workshop)	13	13	
Independent Review Panel (Delta Science Program's Fall Low Salinity Habitat (FLaSH) Study Synthesis Review)	10	10	
Independent Scientific Advisory Panel (IEP Contaminants Work Team's Biomarkers Workshop)	15	12	2
Independent Scientific Review Panel (Delta Science Program's Long-term Operations Biological Opinions Annual Science Review)	5		
MWQI SPC	2		13
San Francisco Bay and Central Valley Water Boards	20		20
SFCWA	15	15	
SFEI	3	1	2
SWRCB	55	55	
USBR, CDWR, USFWS, NMFS, CDRW, SWRCB	15	5	
USFWS, USBR			36
<b>Grand Total</b>	<b>1007</b>	<b>463</b>	<b>789</b>

## Appendix A

### Summary of Interim Science Action Agenda (ISAA) Matrix Methods

#### **Overview:**

The ISAA matrix was organized by dividing information into three main sections: (1) Science Needs, (2) Actionable Science Questions, and (3) Science Actions.

#### Policy Categories

- ☐ Extracted from the Delta Plan to bin science needs and actionable science questions.
- ☐ There are 5 primary categories:
  - 1) Water Resources (WR) – Science to understand and support water supply water operations and management
  - 2) Ecosystem Restoration (ER) – Science to understand ecosystem elements, functions and processes, and support ecosystem management and restoration
  - 3) Water Quality (WQ) – Science to understand physical and biological drivers of water quality conditions and their effects on water management and ecosystems.
  - 4) Reduced Risk (RR) – Science to understand and support decisions about flood risks
  - 5) Delta as Place (DP) – Science to understand and support decisions about the socio-economic and cultural elements of the Delta.
- ☐ Combinations of categories were used when necessary ( i.e., WQER)

#### **(1) Science Needs**

- ☐ Broad, overarching science and information needs extracted from various reference documents that, when addressed, will assist in the decision making process of policy and managers.
- ☐ Are organized into the broad policy categories.
- ☐ If the reference document did not provide a science need or actionable science question, the missing item was entered by the Delta Science Program. Unless stated in the reference document, the science action column was intentionally left blank.
- ☐ Can have one or multiple actionable science questions and associated science actions.

#### **(2) Actionable Science Question**

- ☐ Translation of science and information needs into questions that can be addressed with specific science actions

#### **(3) Science Action**

- ☐ Defined as an activity that addresses the actionable science question and/or the overarching science need

- ☐ There are 7 primary categories to further describe the type of science action:
  - 1) Modeling (MD)
  - 2) Data Management (DM)
  - 3) Monitoring (MN)
  - 4) Research (RE)
  - 5) Synthesis (SY)
  - 6) Independent Peer Review (IR)
  - 7) Communication (CO)
- ☐ Combinations of categories were used when necessary (i.e. MDRE)
- ☐ When possible, science actions were further described with a status of implementation of either proposed, ongoing, or completed.
- ☐ Priority levels, of either high or low, were identified for science actions where the reference document identified them as such.

**Additional information collected, where applicable**

- ☐ Title of reference document
- ☐ Page number from reference document from which information was taken
- ☐ Year of publication of reference document
- ☐ Agency or entity that published the reference document
- ☐ Relationship to policy and management (i.e. specific regulations)
- ☐ Funding source(s)
- ☐ Estimated funding needed for full performance
- ☐ Entity(ies) implementing science action
- ☐ Additional notes